

- d) an immunogenic fragment of the amino acid sequence of SEQ ID NO:3 or SEQ ID NO:5.

22. An isolated polypeptide of claim 21, having a sequence of SEQ ID NO:3 or SEQ ID NO:5.

23. An isolated polynucleotide encoding a polypeptide of claim 21.

24. A method for producing a polypeptide of claim 21, the method comprising:

- a) culturing a cell under conditions suitable for expression of the polypeptide, wherein said cell is transformed with a recombinant polynucleotide, and said recombinant polynucleotide comprises a promoter sequence operably linked to a polynucleotide encoding the polypeptide of claim 21, and
- b) recovering the polypeptide so expressed.

25. A method of claim 24, wherein the polypeptide has the sequence of SEQ ID NO:3 or SEQ ID NO:5.

26. An isolated antibody which specifically binds to a polypeptide of claim 21.

27. A pharmaceutical composition comprising an effective amount of a polypeptide of claim 21 and a pharmaceutically acceptable excipient.

28. A pharmaceutical composition of claim 27, wherein the polypeptide has the sequence of SEQ ID NO:3 or SEQ ID NO:5.

29. A method for screening a compound for effectiveness as an agonist of a polypeptide of claim 21, the method comprising:

- a) exposing a sample comprising a polypeptide of claim 21 to a compound, and
- b) detecting agonist activity in the sample.

30. A method for screening a compound for effectiveness as an antagonist of a polypeptide of claim 21, the method comprising:

- a) exposing a sample comprising a polypeptide of claim 21 to a compound, and
- b) detecting antagonist activity in the sample.

Sub
B3

31. A pharmaceutical composition comprising the antibody of claim 26 in conjunction with a suitable pharmaceutical carrier.

AI

32. A method of preparing a polyclonal antibody with the specificity of the antibody of claim 26 comprising:

- a) immunizing an animal with the polypeptide of SEQ ID NO:3 or SEQ ID NO:5 or an antigenically-effective fragment thereof under conditions to elicit an antibody response;
- b) isolating animal antibodies; and
- c) screening the isolated antibodies with the polypeptide thereby identifying a polyclonal antibody binds specifically to the polypeptide of SEQ ID NO:3 or SEQ ID NO:5.

33. An antibody produced by a method of claim 32.

Sub
B4

34. A pharmaceutical composition comprising the antibody of claim 33 in conjunction with a suitable pharmaceutical carrier.

35. A method of making a monoclonal antibody with the specificity of the antibody of claim 26 comprising:

- a) immunizing an animal with the polypeptide of SEQ ID NO:3 or SEQ ID NO:5 or an antigenically-effective fragment thereof under conditions to elicit an antibody response;
- b) isolating antibody producing cells from the animal;
- c) fusing the antibody producing cells with immortalized cells in culture to form monoclonal antibody-producing hybridoma cells;
- d) culturing the hybridoma cells; and
- e) isolating from the culture monoclonal antibodies which binds specifically to the polypeptide of SEQ ID NO:3 or SEQ ID NO:5.

36. A monoclonal antibody produced by a method of claim 35.

37. A pharmaceutical composition comprising the antibody of claim 36 in conjunction with a suitable pharmaceutical carrier.

38. The antibody of claim 26, wherein the antibody is:

- (a) a chimeric antibody;
- (b) a single chain antibody;
- (c) a Fab fragment; or
- (d) a F(ab')₂ fragment.

39. A method for detecting polypeptide of SEQ ID NO:3 or SEQ ID NO:5 in a sample comprising the steps of:

- a) combining the antibody of claim 26 with a sample under conditions to allow specific binding; and
- b) detecting specific binding, wherein specific binding indicates the presence of polypeptide of SEQ ID NO:3 or SEQ ID NO:5 in the sample.